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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/532,127	TIMUS ET AL.
	Examiner	Art Unit	
	KENAN CEHIC	2416	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-55</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-55</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of
making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

1.   Claims 16-29 rejected under 35 U.S.C. 112, first paragraph, as failing to comply
with the enablement requirement. The claim(s) contains subject matter which was not
described in the specification in such a way as to enable one skilled in the art to which it
pertains, or with which it is most nearly connected, to make and/or use the invention. .

        Claim 16 is a single means claim.

2.   Claims 2,4, 5-7, 9, 17, 19, 20, 21, 31, 33, 38, 44, 47, 53 rejected under 35
U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and
distinctly claim the subject matter which applicant regards as the invention.

        For claims 2,4, 5, 17, 19, 20, 31, 33, 38, 47, the term "relatively" makes the
claims indefinite.

        For claim 7, both instances of "said threshold" lack antecedent basis. It is
suggested to change both instances to --a threshold--.

        For claim 9, "said resource class" lacks antecedent basis; it is not clear which
specific resource class the applicant is referring to.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

3.   Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Lan et al. (US

2004/0214582)

For claim 1, Lan discloses A resource allocation method (see figs 23-25) in a

communications system (see fig 7) having resources (see section 0018 "timeslot

resources"; section 0225 "channel"), said method comprising the steps of:

- dividing said resources into multiple different resource classes based on an associated

characteristic allocation time (see figs 5-6, 14a-b; section 0090-93 "timeslot…according

to service class" ; section 0203 "timeslots" section 0223-233 "

classes…timeslots…timeslot…class 1…class 2…timeslot assignment to a class

1…timeslots…class 2"; section 0243 "timeslots…class.."), for each resource class:

determining a resource utilization measure (see figs 23-25 ; S141-142, S151, S154, S162,

S165, S168, S171, S175) selecting whether or not to trigger resource allocation based on

said resource utilization measure (see figs 23-25; S142-144, S151-155, S162-175).

1.   Claims 1, 3, 4, 7, 9, 12-14, 16, 18, 19, 22, 23, 25, 26, 27, 29, 30, 32-35   are rejected

under 35 U.S.C. 102(b) as being anticipated by Jurkevich et al. (US 5,282,207) .

        For claim 1, Jurkevich discloses A resource allocation method in a communications

        system (i) having resources (see col 21 line 35 through col 22 line 64 "T-slot minimum

        guaranteed bandwidth... T-slot maximum allowable bandwidth...T-slot...priority...min

        Guaranteed BW...10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-

        slots"; col 28 lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-

        slot type which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–

        slotted payload...each slot..."), said method comprising the steps of:

        - dividing said resources into multiple different resource classes based on an associated

        characteristic allocation time (see col 21 line 35 through col 22 line 64 "T-slot minimum

        guaranteed bandwidth... T-slot maximum allowable bandwidth...T-slot...priority...min

        Guaranteed BW...10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-

        slots"; col 28 lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-

        slot type which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–

        slotted payload...each slot..."), for each resource class:

        -determining a resource utilization measure (see col 25 lines 40-50 "requesting T-slot

        type is below its minimum guaranteed BW...bandwidth seizing..."; col 26 lines 25-40

        "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65 "those

        T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed

        bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their minimum

        guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding"); and

selecting whether or not to trigger resource allocation based on said resource utilization

measure (see col 29 line 49-65 "those T-slot types which exceed...will have bandwidth

seized..."; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26

line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col

28 lines 40-67 "T-slot type exceeding...bandwidth seized...").

For claim 16, Jurkevich discloses A resource allocation system (100) provided in a

communications system (1) (see figs ,1,4, 11a-d) having resources (see col 21 line 35

through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-slot maximum

allowable bandwidth...T-slot...priority...min Guaranteed BW...10%....20%...30%...";

col 23 lines 4-15 "blocking lower priority T-slots"; col 28 lines 45 and col 31 line 5-20

"minimum guaranteed" col 29 lines 49-55 "T-slot type which is below its minimum

guaranteed BW level"; col 4 lines 44-55 "multi–slotted payload...each slot..."), said

resources being divided into muitiple different resource classes based on an associated

characteristic allocation time (see col 21 line 35 through col 22 line 64 "T-slot minimum

guaranteed bandwidth... T-slot maximum allowable bandwidth...T-slot...priority...min

Guaranteed BW...10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-

slots"; col 28 lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-

slot type which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–

slotted payload...each slot..."), said resource allocation system (100) comprising means

(see figs ,1,4, 11a-d) for performing, for each resource class:

- determination (120) of a resource utilization measure (see col 25 lines 40-50

"requesting T-slot type is below its minimum guaranteed BW...bandwidth seizing...";

col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29

line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum

guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their

minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding"); and

- selectively triggering (130) of resource allocation, in dependence of said resource

utilization measure (see col 29 line 49-65 "those T-slot types which exceed...will have

bandwidth seized..."; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth"

; col 26 line 25-40 "two or more T-slot types exceed their minimum guaranteed

bandwidth"; col 28 lines 40-67 "T-slot type exceeding...bandwidth seized...").

For claim 30, Jurkevich discloses Communications system (I) (see figs ,1,4, 11a-d)

having resources (see col 21 line 35 through col 22 line 64 "T-slot minimum guaranteed

bandwidth... T-slot maximum allowable bandwidth...T-slot...priority...min Guaranteed

BW...10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-slots"; col 28

lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-slot type

which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–slotted

payload...each slot..."), said system (I) comprising:

- means (see figs ,1,4, 11a-d) for dividing (200) said resources into multiple different

resource classes based on an associated characteristic allocation time (see col 21 line 35

through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-slot maximum

allowable bandwidth...T-slot...priority...min Guaranteed BW...10%....20%...30%...";

col 23 lines 4-15 "blocking lower priority T-slots"; col 28 lines 45 and col 31 line 5-20

"minimum guaranteed" col 29 lines 49-55 "T-slot type which is below its minimum

guaranteed BW level"; col 4 lines 44-55 "multi–slotted payload…each slot…"); and

-resource allocation means (see figs ,1,4, 11a-d) (100) for performing, for each resource

class:- determination of a resource utilization measure (see col 25 lines 40-50 "requesting

T-slot type is below its minimum guaranteed BW…bandwidth seizing…"; col 26 lines

25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65

"those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum

guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their

minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding"); and-

selectively triggering of resource allocation, in dependence of said resource utilization

measure (see col 29 line 49-65 "those T-slot types which exceed…will have bandwidth

seized…"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26

line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col

28 lines 40-67 "T-slot type exceeding…bandwidth seized…").

For claim 3 and similarly claim 18 and 32, Jurkevich discloses comparing said resource

utilization measure with a threshold (Tk) associated with said resource class (see col 25

lines 40-50 "requesting T-slot type is below its minimum guaranteed BW…bandwidth

seizing…"; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed

BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding

their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types

exceed their minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding"); and- triggering resource allocation if said resource utilization measure exceeds said threshold (Tk) (see col 25 lines 40-50 "requesting T-slot type is below its minimum guaranteed BW...bandwidth seizing..."; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW "; col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-67 "T-slot type exceeding...bandwidth seized...").

For claim 4 and similarly 19 and 33, Jurkevich discloses wherein a first threshold (TFA~) associated with a first resource class having a first characteristic allocation time is larger than a corresponding second threshold (TsLow) associated with a second resource class having a second characteristic allocation time, said first allocation time being relatively shorter than said second allocation time (see col 22 lines 25-56 (Table III and IV) "Threshold 1...4...50%....90%....Min Guaranteed bandwidth....10%....20%....30%....Max Allowable Bw...50%....30%....Call Black Threshold...4...1....2")

For claim 7 and similarly 22 and 34, Jurkevich discloses wherein said dividing step comprises the step of dividing said resources into a first resource class and a second resource class (see col 21 line 35 through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-slot maximum allowable bandwidth...T-slot...priority...min Guaranteed BW...10%.....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-slots"; col 28

lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-slot type

which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–slotted

payload...each slot..."), said method comprising the step of calculating said threshold

(TsLow) associated with said second resource class (see col 29 line 49-65 "those T-slot

types which exceed...will have bandwidth seized..."; col 6 line 40-55 "exceeding their

minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed

their minimum guaranteed bandwidth"; col 28 lines 40-67 "T-slot type

exceeding...bandwidth seized...") based on said threshold associated with said first

resource class (see col 25 lines 40-50 "requesting T-slot type is below its minimum

guaranteed BW...bandwidth seizing..."; col 26 lines 25-40 "requesting T-slot type is

below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which

exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line

25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28

lines 40-55 "T-slot type exceeding") .

For claim 9 and similarly 23 and 35, Jurkevich discloses wherein said characteristic

allocation time is a total time required for allocating a resource of said resource class (see

col 21 line 35 through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-slot

maximum allowable bandwidth...T-slot...priority...min Guaranteed

BW...10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-slots"; col 28

lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-slot type

which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–slotted

payload…each slot…").

For claim 12, Jurkevich discloses wherein said determining step is performed upon a

triggering event (see col 25 lines 40-50 "requesting T-slot type is below its minimum

guaranteed BW…bandwidth seizing…"; col 26 lines 25-40 "requesting T-slot type is

below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which

exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line

25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28

lines 40-55 "T-slot type exceeding") selected from at least one of:

- a change in data traffic (see col 25 lines 40-50 "requesting T-slot type is below its

minimum guaranteed BW…bandwidth seizing…"; col 26 lines 25-40 "requesting T-slot

type is below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which

exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line

25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28

lines 40-55 "T-slot type exceeding") .

For claim 13 and similarly 26, Jurkevich discloses comprising the step of selecting any

resource to be allocated based on information of QoS requirements (see col 20 lines 15-

30 "two major quality of service …packetization delay…bandwidth reservation…"; col

21 lines 10-47 "service quality…bandwidth management…quality of service…"; see col

29 line 49-65 "those T-slot types which exceed…will have bandwidth seized…"; col 6

line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or

more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-67 "T-

slot type exceeding…bandwidth seized…") for connected user equipment (400; 410) (see

figs ,1,4, 11a-d).

For claim 14 and similarly 27, Jurkevich discloses further comprising the step of

selecting any resource to be allocated based on resource saving estimation information

(see col 18 lines 5-68 "indicates frame compression…subscriber inactivity of flow

control….bandwidth need be allocated….").

For claim 25, Jurkevich discloses wherein said determination means (120) (see figs ,1,4,

11a-d). is configured for determining said resource utilization measure in response to

triggering input information (see col 29 line 49-65 "those T-slot types which

exceed…will have bandwidth seized…"; col 6 line 40-55 "exceeding their minimum

guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their

minimum guaranteed bandwidth"; col 28 lines 40-67 "T-slot type exceeding…bandwidth

seized…"; see col 25 lines 40-50 "requesting T-slot type is below its minimum

guaranteed BW…bandwidth seizing…"; col 26 lines 25-40 "requesting T-slot type is

below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which

exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line

25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28

lines 40-55 "T-slot type exceeding").

For claim 29, Jurkevich discloses wherein said resource allocation system (100) is

provided in a network node (see figs ,1,4, 11a-d) of said communications system (1) (see

figs ,1,4, 11a-d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness
    or nonobviousness.

2.   Claims 2, 17 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Jurkevich et al. (US 5,282,207) in view of Cloonan et al (US 2004/0001493)

For claim 2, and similarly 17 and 31, Jurkevich discloses the claimed invention as described above.

For claim 2 and similarly 17 and 31, Jurkevich discloses , wherein said determining step and said selecting step are first performed for a resource class a first priority and are then performed for another resource class having a second priority (see col 25 lines 40-50 "requesting T-slot type is below its minimum guaranteed BW…bandwidth seizing…"; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-67 "T-slot type exceeding…bandwidth seized…"); allocation times (see col 21 line 35 through col 22 line 64 "T-slot minimum guaranteed bandwidth… T-slot maximum allowable bandwidth…T-slot…priority…min Guaranteed BW…10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-slots"; col 28 lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-slot type which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–slotted payload…each slot…").

For claim 17 and 31, Jurkevich discloses said means (120, 130) (see figs ,1,4, 11a-d).

Jurkevich is silent about:

For claim 2 and similarly 17 and 31, a first class having a given characteristic bandwidth and another resource class having a relatively shorter bandwidth .

Cloonan from the same or similar field of endeavor discloses a communication network with the following features:

For claim 2 and similarly 17 and 31, Cloonan discloses a first class having a given

characteristic bandwidth and another resource class having a relatively shorter bandwidth

(see section 0009-12 "guaranteeing a throughput…guaranteed bandwidths…priority…";

section 0027 "priority level…minimum guaranteed throughput…".

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify / combine the features of Jurkevich by using the above recited

features, as taught by Cloonan, in order to provide a method of guaranteeing a quality of

service/ Guaranteed bandwidth to a customer and thus being able to charge a premium

rate (see Cloonan sections 0009-12

3.   Claims 8 and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Jurkevich et

al. (US 5,282,207) in view of Willie et al (US 2004/0252697)

For claim 8 and similarly 37, Jurkevich discloses the claimed invention as described

above.

Jurkevich is silent about:

For claim 8 and similarly 37, wherein said resources are radio resources and said method

comprising the step of providing said radio resources to user equipment (400; 410)

connected to said communications system (1) for enabling utilization of communications

services (402; 412, 414) available for said user equipment (400; 410).

Willie from the same or similar field of endeavor discloses a communication network

with the following features:

For claim 8 and similarly 37, wherein said resources are radio resources and said method

comprising the step of providing said radio resources (see section 0040 "cell

capacity…traffic class…" and figs 2-3) to user equipment (400; 410) (see fig 1; MS)

connected to said communications system (1) (see fig 1) for enabling utilization of

communications services (402; 412, 414) (see section 0040 "traffic

classes...voice...realtime data...non-realtime data...") available for said user equipment

(400; 410) (see fig 1; MS; section 0024 "mobile").

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify / combine the features of Jurkevich by using the above recited

features, as taught by Willie, in order to provide a wireless network / link where mobility

is desirable and where users do not experience differing QoS levels when changing links /

cells (see Willie sections 0004); It would have been obvious to one of the ordinary skill in

the art at the time of the invention to modify / combine the features of Willies by using

the above recited features, as taught by Jurkevich, in order to provide a method of

providing priority of transmission / specific network attributes on a per – traffic

component basis, so that certain data (voice, packet etc) receive the desired attribute

(delay, low packet loss probability etc) so that a desired Quality of service is achieved

(see Jurkevich cols 3-4)

4.   Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Jurkevich et al. (US

5,282,207) in view of Tiedeman Jr. et al (US 2005/0135320) and Laasko (US 6,671,512)

For claim 10, Jurkevich discloses the claimed invention as described above.

For claim 10, Jurkevich discloses wherein said dividing step comprises the step of
dividing said resources into a first resource class and a second resource class (see col 21
line 35 through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-slot
maximum allowable bandwidth...T-slot...priority...min Guaranteed
BW...10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-slots"; col 28
lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-slot type
which is below its minimum guaranteed BW level"; col 4 lines 44-55 "multi–slotted
payload...each slot...")

Jurkevich is silent about:

For claim 10, where a resource of said first resource class is allocable with an allocation
procedure of a first allocation procedure set and a resource of said second resource class
is allocable with an allocation procedure of a second allocation procedure set, said first
allocation procedure set comprises at least one of:

- restricting available transport format combinations (TFC) for user equipment (400; 410)
connected to said system (1); and

- performing an Adaptive Multi Rate (AMR) mode switch for said user equipment (400;
410),

and said second allocation procedure set comprises least one of:

- performing a channel switch from a dedicated high bit-rate channel to a dedicated low
bit-rate channel for said user equipment (400; 410);

- performing a channel switch from a dedicated channel to a common channel for said
user equipment (400; 410);

- performing a handover from a first radio access network to a second radio access

network for said user equipment (400; 410);

- performing a handover from a first carrier frequency to a second carrier frequency for

said user equipment (400; 410); and

- dropping an ongoing call for said user equipment (400; 410).

Tiedeman from the same or similar field of endeavor discloses a communication network

with the following features:

For claim 10, where a resource of said first resource class is allocable with an allocation

procedure of a first allocation procedure set and a resource of said second resource class

is allocable with an allocation procedure of a second allocation procedure set (section

0025-26, 0035, 0085-87, 0098, 0115 "handoff"; section 0045-47 "channel"; section

0061-63 "channel assignment"; section 0114 "reducing data rates…fast reduce

capability"), said first allocation procedure set comprises at least one of:

- reducing the rate for user equipment (400; 410) connected to said system (1) (section

0113-0114 "reducing data rates…fast reduce capability"; see fig 1);

and said second allocation procedure set comprises least one of:

- performing a handover from a first radio access network to a second radio access

network for said user equipment (400; 410) (section 0025-26, 0035, 0085-87, 0098, 0115

"handoff"; section 0045-47 "channel"; section 0061-63 "channel assignment"; see fig 1);

Laasko from the same or similar field of endeavor discloses the following:

For claim 10, Laasko discloses restricting available transport format combinations (see

col 15 line 5-20 "reducing bit rates….limiting the transport format")

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify / combine the features of Jurkevich by using the above recited

features, as taught by Tiedeman and Laasko, in order to provide control method can keep

the system, i.e. the telecommunication network stable and throttle back the overall load in

a controlled fashion and a load margin as the difference between an acceptable (target)

load level and a maximum tolerable load level (threshold) can be reduced which

increases the network system capacity and thus represents an advantage for the network

operator. (see Laasko cols 1-2); in order to provide a reverse link channel structure

capable of achieving high performance for packet data transmission, and which takes into

consideration the data transmission characteristics of the reverse links (see Tiderman

section 0010-15).

5.   Claims 11, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurkevich

et al. (US 5,282,207) in view of Ma (US 6,493,317)

For claim 11 and similarly 24, Jurkevich discloses the claimed invention as described

above.

Jurkevich is silent about:

For claim 11 and similarly 24, wherein said determining step is performed periodically.

Ma from the same or similar field of endeavor discloses a communication network with

the following features:

For claim 11 and similarly 24, Ma discloses wherein said determining step is performed periodically (see col 7 lines 40-55 "measured...utilization...for different classes is periodically measured...").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the system of Jurkevich by using the above recited features, as taught by Ma, in order to provide provide a multi-class traffic engineering technique which improves inter-class resource sharing efficiency and achieves high network throughput of each class of service in the network. It is also desirable to provide a multi-class traffic engineering technique that dynamically distributes link resources across different traffic classes based on load conditions of each traffic class. It is further desirable to provide a multi-class traffic engineering technique which is simple in design, and does not require modifications to existing routing algorithms employed for individual service classes within the network (see Ma col 3)

6.   Claims 15, 28 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurkevich et al. (US 5,282,207) in view of Tiedeman Jr. et al (US 2005/0135320)

For claim 15 and similarly 28 and 36, Jurkevich discloses the claimed invention as described above.

For claim 15 and similarly 28 and 36, Jurkevich discloses resource class (see col 21 line 35 through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-slot maximum allowable bandwidth...T-slot...priority...min Guaranteed BW...10%....20%...30%...";

col 23 lines 4-15 "blocking lower priority T-slots"; col 28 lines 45 and col 31 line 5-20

"minimum guaranteed" col 29 lines 49-55 "T-slot type which is below its minimum

guaranteed BW level"; col 4 lines 44-55 "multi–slotted payload…each slot…")

Jurkevich is silent about:

For claim 15 and similarly 28 and 36, wherein said determining step comprises the step

of estimating a total power of communications links used for said resource.

Tiedeman from the same or similar field of endeavor discloses a communication network

with the following features:

For claim 15 and similarly 28 and 36, Tiedeman discloses wherein said determining step

comprises the step of estimating a total power of communications links used for said

resource (see section 0101 "monitors…power…power meter…determine the amount of

power received…").

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify / combine the features of Jurkevich by using the above recited

features, as taught by Tiedeman, in order to provide a reverse link channel structure

capable of achieving high performance for packet data transmission, and which takes into

consideration the data transmission characteristics of the reverse links (see Tiderman

section 0010-15).

7.   Claims 38-42, 45, 47-52, 54 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Jurkevich et al. (US 5,282,207) in view of Profumo et al (US 7,016,356)

For claim 38 and similarly 47, Jurkevich discloses A resource allocation method in a

communications system (1), said • method comprising the steps of:

providing a guaranteed minimum amount of resources of a first resource class and

resources of a second resource class (see col 6 line 35-55 "minimum guaranteed

bandwidth"; col 21 line 35 through col 22 line 64 "T-slot...minimum guaranteed

bandwidth....T-slot...T-slot type...Min Guaranteed BW...."), a characteristic allocation

time of said first resource class being relatively shorter than a corresponding

characteristic allocation time of said second resource class (see col 21 line 35 through col

22 line 64 "T-slot minimum guaranteed bandwidth... T-slot maximum allowable

bandwidth...T-slot...priority...min Guranteed BW...10%....20%...30%..."; col 23 lines

4-15 "blocking lower priority T-slots"; col 28 lines 45 and col 31 line 5-20 "minimum

guaranteed" col 29 lines 49-55 "T-slot type which is below its minimum guaranteed BW

level"; see fig. 9);

- triggering resource allocation for said second resource class (see col 6 lines 35 -55

"flow control undertaken when a request for additional bandwidth..."; col 25 line 40-49

"FRR is granted...bandwidth seizing..."; col 26 line 25-40 "continue requesting more

bandwidth...at the expense of triggering call blocking on the other T-slot type(s)...T-slot

type...granted...expense..."; col 29 lines 3-16 "new channel request is made... "; col 29

lines 49-55 "requesting additional bandwidth for a T-slot type which is below its

minimum guaranteed BW level"); and

- temporarily allocating a first resource amount of said first resource class during

progression of said resource allocation for said second resource class (see col 7 lines 25 –

32 "seizing bandwidth…and redistributing"; col 24 lines 53-65"requested T-slot type

current BW usage…"; col 26 lines 5-40 "bandwidth seizing…temporarily reallocate

reserved bandwidth from a T-slot type...is requesting additional bandwidth"; col 29 lines

3 -65 "initiates flow control….new channel request is made….flow control is

called…bandwidth seizing from those T-slot types is required…T-slot types which

exceeds their minimum guaranteed bandwidth…will have bandwidth seized…"; col 30

lines 1-35 "thereby requesting flow control....perform less frequently posting of cells for

building…" col 31 lines 1-35 "reduction in bandwidth usage),

whereby a total resource utilization is temporarily reduced during said progression of said

resource allocation for said second resource class (see figs 11a-d; see col 23 line 50 -68

"each TFPS…reserve the requested bandwidth…send a rejection…";see col 7 lines 25 –

32 "seizing bandwidth…and redistributing"; col 26 lines 5-40 "bandwidth

seizing…temporarily reallocate reserved bandwidth from a T-slot type...is requesting

additional bandwidth"; col 29 lines 3 -65 "initiates flow control….new channel request is

made….flow control is called…bandwidth seizing from those T-slot types is required…";

col 30 lines 1 through col 31 line 2 "thereby requesting flow control....perform less

frequently posting of cells for building…free up bandwidth….FRR 137 which has been

held...is dispatched...no longer congested…relieve the congestion"),

For claim 47, Jurkovich disloses a resource allocation system and means (see figs ,1,4,

11a-d)

For claim 39 and 48, Jurkovich disloses further comprising the step of reallocating a

second resource amount of said first resource class (see col 22 lines 40-62 "Max

allowable BW…50%…exceed its maximum guaranteed bandwidth…during low traffic

condition…") after completion of said resource allocation for said second resource class

(see figs 11a-d; see col 23 line 50 -68 "each TFPS…reserve the requested

bandwidth…send a rejection…";see col 7 lines 25 – 32 "seizing bandwidth…and

redistributing"; col 26 lines 5-40 "bandwidth seizing…temporarily reallocate reserved

bandwidth from a T-slot type...is requesting additional bandwidth"; col 29 lines 3 -65

"initiates flow control….new channel request is made….flow control is

called…bandwidth seizing from those T-slot types is required…"; col 30 lines 1 through

col 31 line 2 "thereby requesting flow control....perform less frequently posting of cells

for building…free up bandwidth….FRR 137 which has been held...is dispatched…no

longer congested…relieve the congestion"), said second resource amount being equal to

or larger said guaranteed minimum resource amount (see col 22 lines 40-62 "Max

allowable BW…50%...exceed its maximum guaranteed bandwidth…during low traffic

condition…").

For claim 40 and similarly 49, Jurkovich discloses wherein said temporarily allocating

step comprises the steps of:

- calculating, for said first resource class, a first resource utilization measure (see col 25

lines 40-50 "requesting T-slot type is below its minimum guaranteed BW…bandwidth

seizing…"; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed

BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding

their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types

exceed their minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type

exceeding");

- comparing said first resource utilization measure with a first threshold (TFAST) associated with said first resource class (see col 25 lines 40-50 "requesting T-slot type is below its minimum guaranteed BW...bandwidth seizing..."; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding"); and

- triggering said temporary resource allocation if said first resource utilization measure exceeds said first threshold (TFAST) (see col 25 lines 40-50 "requesting T-slot type is below its minimum guaranteed BW...bandwidth seizing..."; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding").

For claim 41 and similarly 50, Jurkovich discloses, wherein said triggering step comprises the steps of:

- calculating, for said second resource class, a second resource utilization measure (see col 25 lines 40-50 "requesting T-slot type is below its minimum guaranteed BW...bandwidth seizing..."; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or

more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding");

- comparing said second resource utilization measure with a second threshold (TsLow) associated with said second resource class (see col 25 lines 40-50 "requesting T-slot type is below its minimum guaranteed BW...bandwidth seizing..."; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding"); and- triggering resource allocation for said second resource class: if said resource utilization measure exceeds said second threshold (TsLow) (see col 25 lines 40-50 "requesting T-slot type is below its minimum guaranteed BW...bandwidth seizing..."; col 26 lines 25-40 "requesting T-slot type is below its minimum guaranteed BW ";col 29 line 49-65 "those T-slot types which exceed"; col 6 line 40-55 "exceeding their minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their minimum guaranteed bandwidth"; col 28 lines 40-55 "T-slot type exceeding").

For claim 42 and similarly 51, Jurkevich discloses wherein said reallocation step comprises the steps off
- calculating, for said first resource class, a first resource utilization measure (see col 24 lines 50-65 "granted a request for bandwidth... requested T-slot type BW usage <max allowable") in response to ending said resource allocation for said second class (see col

31 lines 20-68 "BW seizing is no longer needed"; col 32 lines 1-30 "amount of

bandwidth to be relinquished...progressively allow more traffic when BW seizing is

ceased...");

comparing said first resource utilization measure with a third threshold (h*TFAST)

associated with said first resource class(see col 24 lines 50-65 "granted a request for

bandwidth... requested T-slot type BW usage <max allowable") ; and

- triggering said reallocation of said second resource amount if said first resource

utilization measure is below said third threshold (h*TFAST) (see col 24 lines 50-65

"granted a request for bandwidth... requested T-slot type BW usage <max allowable").

For claim 45 and similarly 54, Jurkevich discloses wherein said communications system

(1) (see figs ,1,4, 11a-d) provides streaming services (402; 412, 414) by means of at least

one resource of said guaranteed minimum amount of resources (see col 21 line 35

through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-slot maximum

allowable bandwidth...T-slot...priority...min Guranteed BW...10%....20%...30%..."; col

23 lines 4-15 "blocking lower priority T-slots"; col 28 lines 45 and col 31 line 5-20

"minimum guaranteed" col 29 lines 49-55 "T-slot type which is below its minimum

guaranteed BW level"; see fig. 9) to user equipment (400; 410) connected to said system

(1) (see figs ,1,4, 11a-d)

Jurkevich does not explicitly describe:

For claim 38, said first resource amount being relatively smaller than said guaranteed

minimum resource amount.

Profumo et al from the same or similar field of endeavor discloses the following.

For claim 38, Profumo discloses said first resource amount being relatively smaller than

said guaranteed minimum resource amount (see col 2 line 40-50 "momentarily free a

part...this "minimum guaranteed bandwidth").

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify / combine the features of Jurkevich by using the above recited

features, as taught by Profumo, in order to provide differentiating within broadband

services, treatment of connections belonging to different traffic classes, but guaranteeing

in the meantime efficient use of all available transmission capacity or bandwidth in a

channel (see Profumo col 2 lines 27-40).

8.   Claims 43, 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurkevich

et al. (US 5,282,207) and Profumo et al (US 7,016,356) in view of Kronz (US 7,072,313)

For claim 43 and similarly 52, Jurkevich and Profumo discloses the claimed invention as

described above and further X.

For claim 43 and similarly 52, Jurkevich discloses the user equipment connected to said

communication system (see figs ,1,4, 11a-d) utilizing resources of said first resource class

(see col 21 line 35 through col 22 line 64 "T-slot minimum guaranteed bandwidth... T-

slot maximum allowable bandwidth...T-slot...priority...min Guranteed

BW...10%....20%...30%..."; col 23 lines 4-15 "blocking lower priority T-slots"; col 28

lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-slot type

which is below its minimum guaranteed BW level"; see fig. 9) and the guaranteed

minimum resource amount (see col 21 line 35 through col 22 line 64 "T-slot minimum

guaranteed bandwidth… T-slot maximum allowable bandwidth…T-slot…priority…min

Guranteed BW…10%….20%...30%..."; col 23 lines 4-15 "blocking lower priority T-

slots"; col 28 lines 45 and col 31 line 5-20 "minimum guaranteed" col 29 lines 49-55 "T-

slot type which is below its minimum guaranteed BW level"; see fig. 9)

Jurkevich and Profumo are silent about:

For claim 43 and similarly 52, determining a total packet delay (DTOTAL) comparing

said total packet delay (DTOTAL) with a delay threshold (T);

an reallocatin a second amount if said total delay (DTOTAL) exceeds said delay

threshold (T), said second amount being equal to or larger than said resource amount

Kronz from the same or similar field of endeavor discloses a communication network

with the following features:

For claim 43 and similarly 52, Kronz discloses determining a total packet delay

(DTOTAL) (see col 8 linese 35-68 "beyond the delay limit...reassigns from the first

channel to the second channel"); comparing said total packet delay (DTOTAL) with a

delay threshold (T);

an reallocatin a second amount if said total delay (DTOTAL) exceeds said delay

threshold (T) (see col 8 linese 35-68 "beyond the delay limit...reassigns from the first

channel to the second channel"), said second amount being equal to or larger than said

resource amount (see col 8 linese 35-68 "beyond the delay limit...reassigns from the first

channel to the second channel").

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify / combine the system Jurkevich and Profumo of by using the above

recited features, as taught by Kronz, in order to provide a communication method and

network which operates with various changing mixtures of packet lengths with greater

throughput efficiency than conventional slotted networks. It would also be advantageous

to provide a communication method and network which automatically adjusts the

allocation of reserved time slots when traffic loads are high to increase efficiency (see

Kronz col 2-3)

9.   Claims 46 and 55 rejected under 35 U.S.C. 103(a) as being unpatentable over Jurkevich

et al. (US 5,282,207) in view of Tiedeman Jr. et al (US 2005/0135320) and Laasko (US

6,671,512)

For claim For claim 46 and similarly 55,, Jurkevich discloses the claimed invention as

described above.

For For claim 46 and similarly 55, Jurkevich discloses reducing allowed bit-rate below a

guaranteed minimum bit-rate (see col 29 line 49-65 "those T-slot types which

exceed...will have bandwidth seized..."; col 6 line 40-55 "exceeding their minimum

guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed their

minimum guaranteed bandwidth"; col 28 lines 40-67 "T-slot type exceeding...bandwidth

seized...") and said reallocating step comprises the step of increasing said allowed bit-

rate to at least said guaranteed minimum bit-rate (see col 29 line 49-65 "those T-slot

types which exceed...will have bandwidth seized..."; col 6 line 40-55 "exceeding their

minimum guaranteed bandwidth" ; col 26 line 25-40 "two or more T-slot types exceed

their minimum guaranteed bandwidth"; col 28 lines 40-67 "T-slot type

exceeding…bandwidth seized…").

Jurkevich is silent about:

For claim 46 and similarly 55, wherein said temporarily resource allocating step

comprises the step of temporarily by restricting allowed Transport Format Combinations

(TFC) and by releasing said imposed TFC restrictions.

Laasko from the same or similar field of endeavor discloses the following:

For claim 46 and similarly 55, Laasko discloses wherein said temporarily resource

allocating step comprises the step of temporarily by restricting allowed Transport Format

Combinations (TFC) (see col 15 line 5-20 "reducing bit rates….limiting the transport

format") and by releasing said imposed TFC restrictions (see col 15 line 5-20 "reducing

bit rates….limiting the transport format"; col 16-17 "transport format).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify / combine the features of Jurkevich by using the above recited

features, as taught by Laasko, in order to provide control method can keep the system, i.e.

the telecommunication network stable and throttle back the overall load in a controlled

fashion and a load margin as the difference between an acceptable (target) load level and

a maximum tolerable load level (threshold) can be reduced which increases the network

system capacity and thus represents an advantage for the network operator. (see Laasko

cols 1-2);

<p style="text-align:center">Conclusion</p>

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENAN CEHIC whose telephone number is (571)270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KWANG BIN YAO can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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